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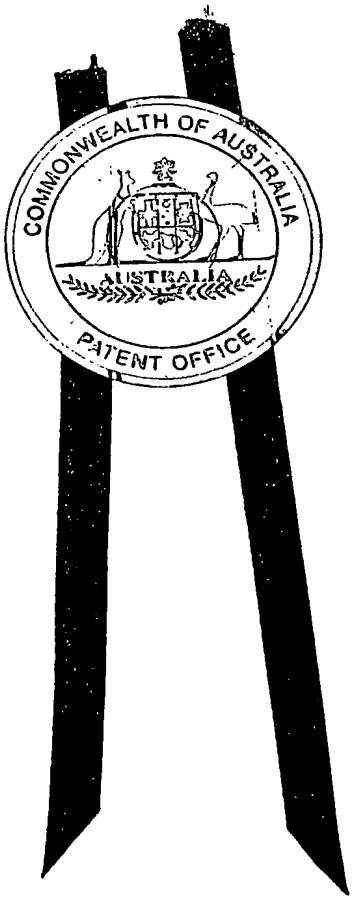

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PROVISIONAL SPECIFICATION

Invention Title: **IMPROVED COMPACTOR SYSTEM**

The invention is described in the following statement:

Our Ref: 021009

IMPROVED COMPACTION SYSTEM

The present invention relates to systems for the compaction of loose polymorphous material for the purposes of minimizing costs of storage, transportation or disposal.

BACKGROUND

Compaction of loose material is desirable in many industries and for many different reasons. Generally the process includes some form of a confining volume into which the material is deposited with a subsequent mechanical means of decreasing that volume.

In a particular application, that of waste management, the confining volume may take the form of an elongate generally rectangular section container having a moveable blade structure at one end. Waste matter is introduced into the container following which hydraulic rams cause the blade structure to be moved along a part of the length of the container, driving the material into a compacted mass against a discharge gate. Once compacted, the mass may be ejected from the discharge end of the container structure by a further movement of the rams, for example into a transport vehicle.

A feature of such compaction systems is the need for very long hydraulic rams. These then have to be of

telescopic multi stage construction and of large diameter to ensure sufficient power towards the end of the compaction stroke, where the load tends to a maximum. These requirements in turn demand very large hydraulic power systems making compactors of this type very expensive and generally beyond the reach of small isolated communities.

It is an object of the present invention to address or ameliorate at least one of the above disadvantages.

BRIEF DESCRIPTION OF INVENTION

Accordingly, in one broad form of the invention there is provided an incremental compaction system comprising:

(a) an elongate rectangular section container structure

(b) a compactor blade structure

(c) a compactor blade structure activating means wherein said compactor blade structure is incrementally advanced from a retracted position at a first end of said container structure, to a fully advanced position at a second end of said container structure, where said second end is a discharge end.

Preferably said compactor blade structure is incrementally retracted from said second end to said first end of said container structure.

Preferably said container structure includes;

(a) floor sub-structure

(b) wall sub-structures

(c) roof

(d) top opening

(e) top opening cover

(f) discharge gate

Preferably the compactor blade structure is a close sliding fit within said container structure, said compactor blade structure adapted to slide on the surface of said floor sub-structure.

Preferably said wall sub-structures include vertical and horizontal frame members.

Preferably said wall sub-structures include wall sheeting supported internally on said frame members.

Preferably said wall sheeting is arranged in a substantially equal upper portion and substantially equal lower portion, said upper and lower portions being separated so as to form a horizontal slot between the bottom edge of said upper portion and the top edge of said lower portion.

Preferably the outside edges adjoining said slot between said upper portion and said lower portion of said wall sheeting, are supported by horizontal frame members.

Preferably said vertical frame members and horizontal frame members of said wall sub-structure are combined to form an upper frame structure and a lower frame structure adapted to support said upper portion and said lower portion of said wall sheeting.

Preferably the vertical frame members of said upper frame structure and said lower frame structure are rigidly joined together by outwardly arching frame joining webs.

Preferably two longitudinal rail members are disposed side by side between said upper frame structure and the inside of said frame joining webs, the first of said longitudinal rail member being fixed to said frame structure and the second of said longitudinal rail member being fixed to said frame joining webs so as to form a vertical slot between adjoining sides of said rail members.

Preferably said longitudinal rail members are square or rectangular section steel tubing.

Preferably the upper, lower and opposing surfaces of said longitudinal rail members are provided with bearing strip material.

Preferably said longitudinal rail members and said bearing strip material slidably support and guide the inside surfaces of an I-beam, oriented such that the central web of said I-beam hangs between said longitudinal rail members.

Preferably said I-beam is provided with a plurality of thrust assemblies attached at substantially equal intervals along the underside of the lower cross piece of said I-beam.

Preferably each of said thrust assemblies includes;

(a) an assembly housing

(b) a double ended pawl

(c) a pawl pivot shaft

(d) a pawl actuator means

Preferably said housing is a substantially rectangular box-shaped structure open at its underside with said pawl pivot shaft supported in apertures in two opposite sides of said housing.

Preferably said double ended pawl is retained on said pivot shaft within said assembly housing such that in a first position of said pawl, a first end of the pawl projects from the underside of said housing and in a second position the second end of the pawl projects from the underside of said housing.

Preferably said first position of said pawl is urged by a first operating mode of said pawl actuator means and said second position of said pawl is urged by a second operating mode of said pawl actuator means.

Preferably said pawl actuator means is a pneumatic cylinder.

Preferably said pawl actuator means is an hydraulic cylinder.

Preferably said first end of said pawl presents a vertical outer face towards the discharge end of said container structure, when projecting from below said housing and an opposing upwardly sloping face towards the axis of said pivot shaft when said pawl is in said first position.

Preferably said second end of said pawl presents a vertical outer face towards said first end of said container structure when projecting from below said housing and an opposing upwardly sloping face towards the axis of said pivot shaft when said pawl is in said second position.

Preferably said wall sub-structures and all elements attached thereto are symmetrical for both sides of the compaction system.

Preferably said compactor blade structure activating means are two horizontally disposed hydraulic rams mounted

at their passive ends to each of said side wall sub-structures and at their rod ends to thrust blocks attached to each of said I-beams.

Preferably said I-beams are urged into reciprocal horizontal motion relative to said longitudinal rail system by said hydraulic rams.

Preferably said compactor blade structure is provide with a projecting lug on each of its sides, said projecting lug adapted to pass through the slot between upper and lower portions of wall sheeting.

Preferably said lugs are adapted to contact said vertical faces of any one of said double ended pawls of said thrust assemblies on each side of the container structure.

Preferably said edges of said lugs facing said first end of said container structure are brought into contact with said vertical face of a pawl of one of corresponding said thrust assemblies on each side of said container structure when said pawl is in said first position, by the extending action of said hydraulic rams.

Preferably said edges of said lugs facing said second end of said container structure are brought into contact with said vertical face of a pawl of one of corresponding said thrust assemblies on each side of said container

structure when said pawl is in said second position, by the retracting action of said hydraulic rams.

Preferably said upwardly sloping face of said pawl, when forced into contact with an edge of said lug of said compactor blade structure, causes said pawl to rotate about said pawl pivot axis thereby allowing the thrust assembly of that pawl to pass said lug.

Preferably said pawl actuation means of a said thrust assembly is set to a non-operating mode when any said thrust assembly is required to pass said lug.

Preferably a first extending action of said hydraulic rams, when said pawls are in said first position and said compactor blade structure is in a fully retracted position, will cause pawls of the corresponding pair, one on each side of said container structure, of said thrust assemblies closest to said first end of said container structure, to force said compactor blade structure towards said discharge end in a first incremental movement.

Preferably a first retraction movement of said hydraulic rams following a first extension movement of said rams, causes the next closest corresponding pair of thrust assemblies, one on each side of said container structure, to pass over said lug of said compactor blade structure, the pawls of said thrust assemblies rotating into said

thrust assembly housings from forced contact between said lug and upwardly sloping faces of said pawls.

Preferably pawls of the next closest corresponding pair of said thrust assemblies to said first end of said container structure, are urged into a said first position by said pawl actuator means.

Preferably a second extension of said hydraulic rams causes a second incremental movement of said compactor blade structure towards said second end of said container structure.

Preferably subsequent extensions and retractions of said hydraulic rams cause corresponding incremental movements of said compactor blade towards said second end of said container structure, said movements ending after engagement of the pawls of that pair of corresponding connector housings closest to said second end of said container structure, and the extending of said hydraulic rams.

Preferably extending strokes of said hydraulic rams for incremental movement of said compactor blade structure are smaller than the maximum stroke of said rams.

Preferably the last incremental movement of said compactor blade structure causes said blade structure to

partially project from said second end of said container structure.

Preferably a first incremental retracting movement of said compactor blade structure from its said limit of travel at said second end of said container structure, is preceded by an extension of said hydraulic rams to the maximum stroke of said rams.

Preferably any incremental retracting movement of said compactor blade structure is preceded by an urging of said second ends of double ended pawls into said second position by said pawl actuator means.

Preferably said edges of said lugs facing said second end of said container structure are brought into contact with said vertical faces of a pawls of corresponding pairs of said thrust assemblies, one on each side of said container structure when said pawl is in said second position, by the retracting action of said hydraulic rams.

Preferably a first retraction movement of said hydraulic rams, when said pawls are in said second position and said compactor blade structure is in a final incremented position at said second end of said container structure, will cause pawls of the corresponding pair, one on each side of said container structure, of said thrust assemblies closest to said second end of said container

structure, to force said compactor blade structure towards said first end of said container structure, in a first incremental movement.

Preferably a first extension movement of said hydraulic rams following a first retraction movement of said rams, causes the next closest corresponding pair of thrust assemblies, one on each side of said container structure, to pass over said lug of said compactor blade structure, the pawls of said thrust assemblies rotating into said thrust assembly housings from forced contact between said lug and upwardly sloping faces of said pawls.

Preferably subsequent retractions and extensions of said hydraulic rams cause corresponding incremental movements of said compactor blade towards said first end of said container structure, said movements ending after engagement of the pawls of that pair of corresponding connector housings closest to said first end of said container structure, and the retraction of said hydraulic rams.

Preferably retracting strokes of said hydraulic rams for incremental movement of said compactor blade structure to the limit of its travel at said first end of said container structure are smaller than the maximum stroke of said rams.

Preferably said discharge gate is adapted to provide one end of a compaction space defined by said gate, walls, roof and floor of said container structure and with an opposite end provided by the front face of said compactor blade structure.

Preferably said discharge gate is hydraulically operable.

Preferably said top opening is an opening in the roof of said container structure, said opening adapted to receive compactable material.

Preferably said top opening cover is hydraulically operable.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the present invention will now be described with reference to the accompanying drawings wherein:

Figure 1 is a general perspective view of a preferred embodiment of the invention,

Figure 2a and 2b show the invention in use,

Figure 3 is a cross-section view of a side wall substructure according to the invention,

Figure 4 is a side view of the side wall substructure of Figure 3,

Figure 5a to 5c show a first operating sequence of a component of part of the invention,

Figures 6a to 6c show a second operating sequence of the component of Figure 5.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

A first preferred embodiment of the invention will now be described with reference to the accompanying drawings.

With reference to the perspective view of Figure 1 a compactor system 10 comprises a container structure 11 including floor substructure 15, wall substructures 16, a discharge gate 21 and compactor blade structure 12. Roof 17 includes top opening 18 and top opening cover 19. Preferably top opening cover 19 and discharge gate 21 are operated by hydraulic rams 20 and 23 respectively.

Figure 1 shows compactor blade structure 12 in its fully advanced position projecting through discharge gate opening 22 with discharge gate 21 in its open position. When compactor blade structure 12 is in a fully retracted position at end 13 of container structure 11, compactable material may be inserted into the container through top opening 18. With the top opening cover 19 closed and discharge gate 21 lowered,' compactor blade structure 12 is

driven towards the discharge end 14, thereby compacting any material in the container.

Figure 2a shows compactor system 10 in loading mode, where compactor blade structure 12 is fully retracted at end 13 of container structure 11 and compactable material 24 is introduced through top opening 18.

Figure 2b shows compactor system 10 with side wall structure 16 removed for clarity, where compacted material 25 has been ejected through opened discharge gate 21 into transport vehicle 26.

The process of compaction of compactable material according to the invention will now be described in more detail.

Figure 3 is a cross section of a wall substructure 16 as viewed from the discharge end of the container structure. It should be noted that the wall substructure 16 and all associated components shown in Figures 3 and 4 are symmetrically duplicated for the opposite wall of container structure 11.

Wall substructure 16 includes upper frame structure 34 and lower frame structure 35 made up of a plurality of vertical frame members 27 and horizontal frame members 28 (as further illustrated in Figure 4). Affixed internally to upper frame structure 34 and lower frame structure 35 are

wall sheeting upper portion 30 and lower wall sheeting portion 31 respectively.

The upper and lower portions of wall sheeting 30 and 31 and frame structures 34 and 35, are separated so as to form horizontal slot 32 extending substantially for the length of the container structure 11. Joining webs 36 are rigidly connected to each corresponding upper and lower vertical frame member 27 to effectively combine upper and lower wall sections 34 and 35 into a unified rigid structure.

A pair of longitudinal rail members 37 disposed side by side are provided of which the inner rail member is attached to upper wall section vertical frame members 27 and the outer rail member is attached to the joining webs 36. Rail members 37 are separated so as to leave a vertical slot 40 between their adjoining sides. Rail members 37 extend the length of container structure 11 and are preferably in the form of rectangular section steel tubing. The upper, lower and adjoining surfaces of longitudinal rail members 37 are provided with bearing strip material 38.

Interposed between adjoining longitudinal rails 37 is an I-beam 39 oriented so that its central web hangs vertically in slot 40 with the underside surfaces of its

upper flange supported on the bearing strip material 38 covering the upper surfaces of longitudinal rail members 37. The sizes of rail members 37, I-beam 39 and bearing strip material 38 are so chosen as to allow close sliding fit reciprocating movement of I-beam 39 on rails and bearing strips.

Attached to the upper flange of I-beam 39 is thrust block 41. An hydraulic ram 42, attached to wall substructure 16 at the ram's passive end 43 and to thrust block 41 at its rod end 44, is adapted to impart reciprocal motion to I-beam 39.

Attached to the lower flange of I-beam 39 is a plurality of thrust assemblies 46a to 46n. Each thrust assembly 46 includes a double ended pawl 48 of which a first end 51 is visible. Pawl 48 is mounted on pivot shaft 50 supported in thrust assembly housing 47 and may be rotated to project either of its ends from below housing 47 by pawl actuator means 49.

Compactor blade structure 12 is adapted to slide on floor 15 and is a close sliding fit between internal wall sheeting 30, 31 and roof 17. Each side of compactor blade structure 12 is provided with projecting lug 45, adapted to extend through slot 32 so as to engage with one end of double ended pawl 48.

Figure 4 shows a side view of compaction system 10 from which the internal wall sheeting has been omitted for clarity.

Compactor block structure 12 shown as hatched, has been moved towards the discharge gate 21 of container structure 11 to the position shown, by a first extension stroke of hydraulic ram 42 acting on I-beam 39. First movement of I-beam 39 was transferred to projecting lug 45 through pawl first end 51a of thrust assembly 46a. As now shown, the ram 42 is in its retracted state ready to move compactor block structure 12 a second increment towards the discharge gate end by acting on projecting lug 45 with pawl end 51b of thrust assembly 46b.

The interaction of compactor blade structure 12 projecting lug 45 and a thrust assembly will now be described in detail with reference to Figures 4 and 5a to 5d. Again it should be noted that the actions described are symmetrically duplicated for both sides of container structure 11.

At the start of a compaction sequence, compactor blade structure 12 is fully in its retracted position at first end 13 of container structure 11 (Figure 4). As shown in Figure 5a, projecting lug 45 is then forward, that is towards the second end 14 of the container structure, of

thrust assembly 46a. At this stage, thrust assembly pawl actuator 49a is in retracted mode which sets first end 51a of pawl 48a in forward thrust position. Hydraulic ram 42 now extends for a first compaction stroke, sliding I-beam 39 forward together with thrust assembly 46a, to force lug 45 forward to a first incremented position.

Hydraulic ram 42 now retracts, to pull I-beam 39 back to its initial position. This requires second thrust assembly 46b to pass the projecting lug 45 as shown in Figure 5b and 5c. This is achieved by de-activating pawl actuator 49b, allowing double ended pawl 48b to rotate about pawl pivot shaft 50b as upwardly sloping face 56b is forced against the lug 45. When ram 42 is fully retracted, pawl actuator 49b is returned to its retracted position, thus setting first end 51b of pawl 48b to its forward thrust position as shown in Figure 5d.

This sequence is repeated until compactor blade structure 12 reaches its forward limit at second end 14 of container structure 11, projecting through opened discharge gate 21.

For the incremental movements towards discharge second end 14, ram 42 does not out-stroke to its full extent, the stroke being controlled by suitable limit switches. This is to allow the forward thrust assembly 46n to be driven past

lug 45 when its actuator is de-activated by a full extension of the ram, to commence the incremental return of compactor blade structure 12 to first end 13 of container structure 11.

This process is shown in Figures 6a to 6c. Initially I-beam 39 with thrust assembly 46n is partially retracted by ram 42 to allow pawl actuator 49n to extend, thereby rotating pawl 48n to bring second end 52n of pawl 48n into its reverse thrust position as shown in Figure 6a.

With pawl actuator 49n de-activated, thrust assembly 46n is pushed past lug 45 by the full extension of ram 42 as shown in Figure 6b. Pawl actuator 49n now extends to reset second end 52n to its reverse thrust position as shown in Figure 6c. Retraction of ram 42 now forces compactor blade assembly into a first retracted position. Extension of ram 42 while pawl actuator 49n-1 is de-activated allows thrust assembly 46n-1 to be pushed past lug 45. After second end 52n-1 of pawl 48n-1 has been set to its reverse thrust position, the retraction of ram 42 forces the compactor blade structure 12 into a second retracted position.

This sequence is repeated until the compactor blade structure is returned to its fully retracted position at first end 13 of container housing 11. The retraction

strokes of ram 42 for the incremental retraction of compactor blade structure 12 are shorter than the full retraction stroke of the ram, the stroke being limited by suitable limit switches. This is to allow the first thrust assembly 46a to be retracted past lug 45 by a full retraction of the ram to re-commence the incremental compaction sequence described above.

In use, the incremental advance of the compactor blade structure towards the discharge end of container structure 11, occurs once a quantity of compactable material has been introduced into container structure 11 and both the top opening cover 19 and discharge gate 21 are closed. When a desired degree of compaction has been achieved at some point during the advance of compactor blade structure 12, discharge gate 21 is opened and the compacted material ejected by the completion of the incremental advance of the blade structure.

The above describes only one embodiment of the present invention and modifications, obvious to those skilled in the art, can be made thereto without departing from the scope and spirit of the present invention.

CLAIMS

1. An incremental compaction system comprising:

(a) an elongate rectangular section container structure

(b) a compactor blade structure

(c) a compactor blade structure activating means wherein said compactor blade structure is incrementally advanced from a retracted position at a first end of said container structure, to a fully advanced position at a second end of said container structure, where said second end is a discharge end

2. The compaction system of Claim 1 wherein said compactor blade structure is incrementally retracted from said second end to said first end of said container structure.

3. The compaction system of Claim 1 wherein said container structure includes;

(a) floor sub-structure

(b) wall sub-structures

(c) roof

(d) top opening

(e) top opening cover

(f) discharge gate

4. The compaction system of Claim 3 wherein the compactor blade structure is a close sliding fit within said container structure, said compactor blade structure adapted to slide on the surface of said floor sub-structure.

5. The compaction system of Claim 3 wherein said wall sub-structures include vertical and horizontal frame members.

6. The compaction system of Claim 5 wherein said wall sub-structures include wall sheeting supported internally on said frame members.

7. The compaction system of Claim 6 wherein said wall sheeting is arranged in a substantially equal upper portion and substantially equal lower portion, said upper and lower portions being separated so as to form a horizontal slot between the bottom edge of said upper portion and the top edge of said lower portion.

8. The compaction system of Claim 7 wherein the outside edges adjoining said slot between said upper portion and said lower portion of said wall sheeting, are supported by horizontal frame members.

9. The compaction system of any preceding claim wherein said vertical frame members and horizontal frame members of said wall sub-structure are combined to

form an upper frame structure and a lower frame structure adapted to support said upper portion and said lower portion of said wall sheeting.

10. The compaction system of Claim 9 wherein the vertical frame members of said upper frame structure and said lower frame structure are rigidly joined together by outwardly arching frame joining webs.

11. The compaction system of Claim 10 wherein two longitudinal rail members are disposed side by side between said upper frame structure and the inside of said frame joining webs, the first of said longitudinal rail member being fixed to said frame structure and the second of said longitudinal rail member being fixed to said frame joining webs so as to form a vertical slot between adjoining sides of said rail members.

12. The compaction system of Claim 11 wherein said longitudinal rail members are square or rectangular section steel tubing.

13. The compaction system of Claim 12 wherein the upper, lower and opposing surfaces of said longitudinal rail members are provided with bearing strip material.

14. The compaction system of Claim 13 wherein said longitudinal rail members and said bearing strip

material slidably support and guide the inside surfaces of an I-beam, oriented such that the central web of said I-beam hangs between said longitudinal rail members.

15. The compaction system of Claim 14 wherein said I-beam is provided with a plurality of thrust assemblies attached at substantially equal intervals along the underside of the lower cross piece of said I-beam.

16. The compaction system of Claim 15 wherein each of said thrust assemblies includes;

(a) an assembly housing

(b) a double ended pawl

(c) a pawl pivot shaft

(d) a pawl actuator means

17. The compaction system of Claim 16 wherein said housing is a substantially rectangular box-shaped structure open at its underside with said pawl pivot shaft supported in apertures in two opposite sides of said housing.

18. The compaction system of Claim 16 wherein said double ended pawl is retained on said pivot shaft within said assembly housing such that in a first position of said pawl, a first end of the pawl projects from the underside of said housing and in a second position the

second end of the pawl projects from the underside of said housing.

19. The compaction system of Claim 16 wherein said first position of said pawl is urged by a first operating mode of said pawl actuator means and said second position of said pawl is urged by a second operating mode of said pawl actuator means.

20. The compaction system of Claim 16 wherein said pawl actuator means is a pneumatic cylinder.

21. The compaction system of Claim 16 wherein said pawl actuator means is an hydraulic cylinder.

22. The compaction system of Claim 19 wherein said first end of said pawl presents a vertical outer face towards the discharge end of said container structure, when projecting from below said housing and an opposing upwardly sloping face towards the axis of said pivot shaft when said pawl is in said first position.

23. The compaction system of Claim 19 wherein said second end of said pawl presents a vertical outer face towards said first end of said container structure when projecting from below said housing and an opposing upwardly sloping face towards the axis of

said pivot shaft when said pawl is in said second position.

24. The compaction system of any preceding claim wherein said wall sub-structures and all elements attached thereto are symmetrical for both sides of the compaction system.

25. The compaction system of Claims 1 to 14 wherein said compactor blade structure activating means are two horizontally disposed hydraulic rams mounted at their passive ends to each of said side wall sub-structures and at their rod ends to thrust blocks attached to each of said I-beams.

26. The compaction system of Claim 25 wherein said I-beams are urged into reciprocal horizontal motion relative to said longitudinal rail system by said hydraulic rams.

27. The compaction system of Claim 4 wherein said compactor blade structure is provide with a projecting lug on each of its sides, said projecting lug adapted to pass through the slot between upper and lower portions of wall sheeting.

28. The compaction system of Claim 27 wherein said lugs are adapted to contact said vertical faces of any one

of said double ended pawls of said thrust assemblies on each side of the container structure.

29. The compaction system of Claim 28 wherein said edges of said lugs facing said first end of said container structure are brought into contact with said vertical face of a pawl of one of corresponding said thrust assemblies on each side of said container structure when said pawl is in said first position, by the extending action of said hydraulic rams.

30. The compaction system of Claim 29 wherein said edges of said lugs facing said second end of said container structure are brought into contact with said vertical face of a pawl of one of corresponding said thrust assemblies on each side of said container structure when said pawl is in said second position, by the retracting action of said hydraulic rams.

31. The compaction system of Claims 22 to 30 wherein any said upwardly sloping face of said pawl, when forced into contact with an edge of said lug of said compactor blade structure, causes said pawl to rotate about said pawl pivot axis thereby allowing the thrust assembly of that pawl to pass said lug.

32. The compaction system of Claim 31 wherein said pawl actuation means of a said thrust assembly is set to a

non-operating mode when any said thrust assembly is required to pass said lug.

33. The compaction system of Claim 29 wherein a first extending action of said hydraulic rams, when said pawls are in said first position and said compactor blade structure is in a fully retracted position, will cause pawls of the corresponding pair, one on each side of said container structure, of said thrust assemblies closest to said first end of said container structure, to force said compactor blade structure towards said discharge end in a first incremental movement.

34. The compaction system of Claims 29 to 33 wherein a first retraction movement of said hydraulic rams following a first extension movement of said rams, causes the next closest corresponding pair of thrust assemblies, one on each side of said container structure, to pass over said lug of said compactor blade structure, the pawls of said thrust assemblies rotating into said thrust assembly housings from forced contact between said lug and upwardly sloping faces of said pawls.

35. The compaction system of Claim 34 wherein pawls of the next closest corresponding pair of said thrust

assemblies to said first end of said container structure, are urged into a said first position by said pawl actuator means.

36. The compaction system of Claims 29 to 35 wherein a second extension of said hydraulic rams causes a second incremental movement of said compactor blade structure towards said second end of said container structure.

37. The compaction system of Claims 29 to 35 wherein subsequent extensions and retractions of said hydraulic rams cause corresponding incremental movements of said compactor blade towards said second end of said container structure, said movements ending after engagement of the pawls of that pair of corresponding connector housings closest to said second end of said container structure, and the extending of said hydraulic rams.

38. The compaction system of Claim 37 wherein extending strokes of said hydraulic rams for incremental movement of said compactor blade structure are smaller than the maximum stroke of said rams.

39. The compaction system of Claim 37 wherein the last incremental movement of said compactor blade structure

causes said blade structure to partially project from said second end of said container structure.

40. The compaction system of Claim 38 wherein a first incremental retracting movement of said compactor blade structure from its said limit of travel at said second end of said container structure, is preceded by an extension of said hydraulic rams to the maximum stroke of said rams.

41. The compaction system of Claim 40 wherein any incremental retracting movement of said compactor blade structure is preceded by an urging of said second ends of double ended pawls into said second position by said pawl actuator means.

42. The compaction system of Claim 28 wherein said edges of said lugs facing said second end of said container structure are brought into contact with said vertical faces of a pawls of corresponding pairs of said thrust assemblies, one on each side of said container structure when said pawl is in said second position, by the retracting action of said hydraulic rams.

43. The compaction system of Claim 40 wherein a first retraction movement of said hydraulic rams, when said pawls are in said second position and said compactor blade structure is in a final incremented position at

said second end of said container structure, will cause pawls of the corresponding pair, one on each side of said container structure, of said thrust assemblies closest to said second end of said container structure, to force said compactor blade structure towards said first end of said container structure, in a first incremental movement.

44. The compaction system of Claim 43 wherein a first extension movement of said hydraulic rams following a first retraction movement of said rams, causes the next closest corresponding pair of thrust assemblies, one on each side of said container structure, to pass over said lug of said compactor blade structure, the pawls of said thrust assemblies rotating into said thrust assembly housings from forced contact between said lug and upwardly sloping faces of said pawls.

45. The compaction system of Claims 40 to 44 wherein subsequent retractions and extensions of said hydraulic rams cause corresponding incremental movements of said compactor blade towards said first end of said container structure, said movements ending after engagement of the pawls of that pair of corresponding connector housings closest to said first

end of said container structure, and the retraction of said hydraulic rams.

46. The compaction system of Claim 45 wherein retracting strokes of said hydraulic rams for incremental movement of said compactor blade structure to the limit of its travel at said first end of said container structure are smaller than the maximum stroke of said rams.

47. The compaction system of Claim 3 wherein said discharge gate is adapted to provide one end of a compaction space defined by said gate, walls, roof and floor of said container structure and with an opposite end provided by the front face of said compactor blade structure.

48. The compaction system of Claim 3 wherein said discharge gate is hydraulically operable.

49. The compaction system of Claim 3 wherein said top opening is an opening in the roof of said container structure, said opening adapted to receive compactable material.

50. The compaction system of Claim 3 wherein said top opening cover is hydraulically operable.

DATED: 21 March 2002

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WALLINGTON-DUMMER

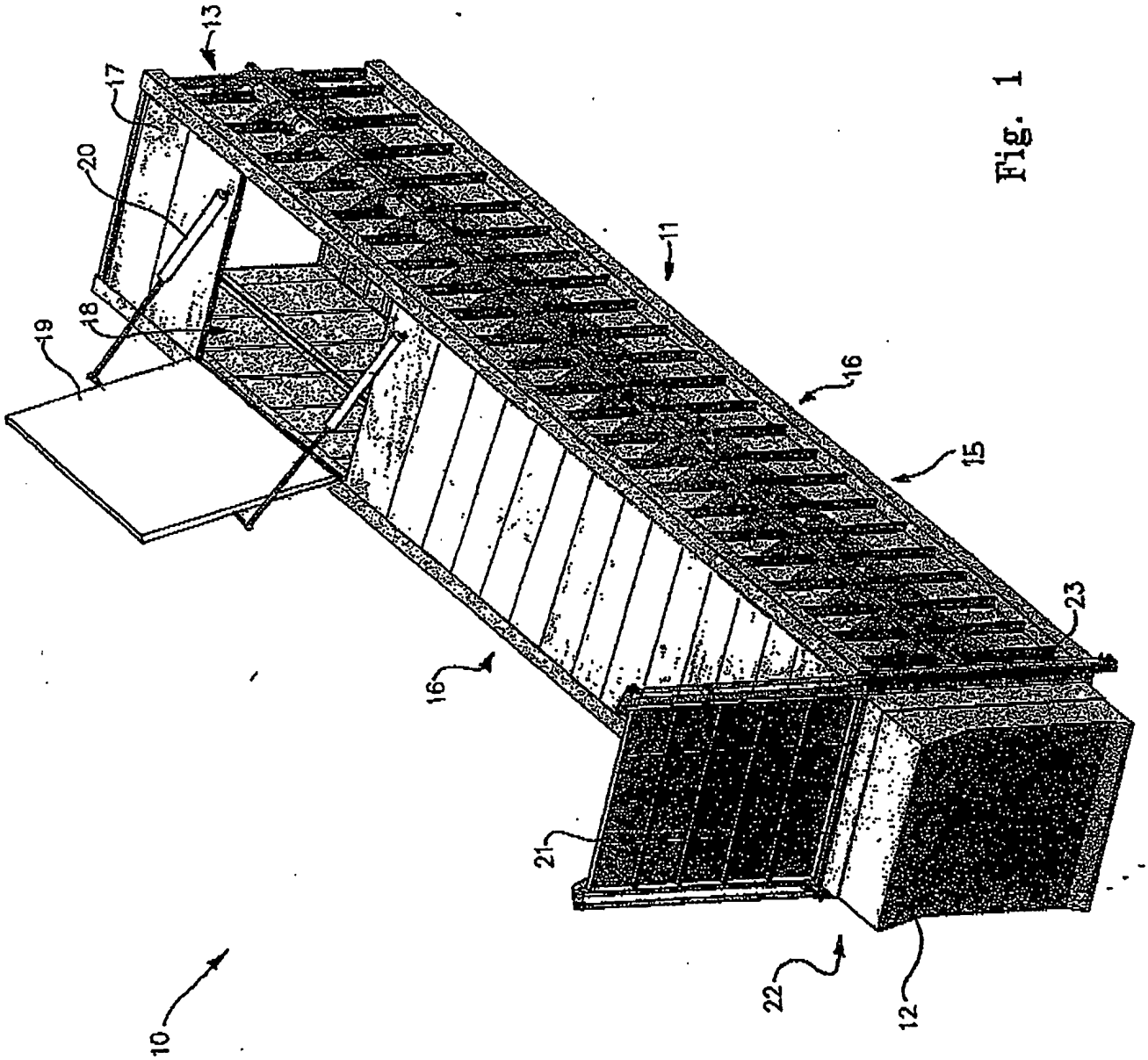

Fig. 1

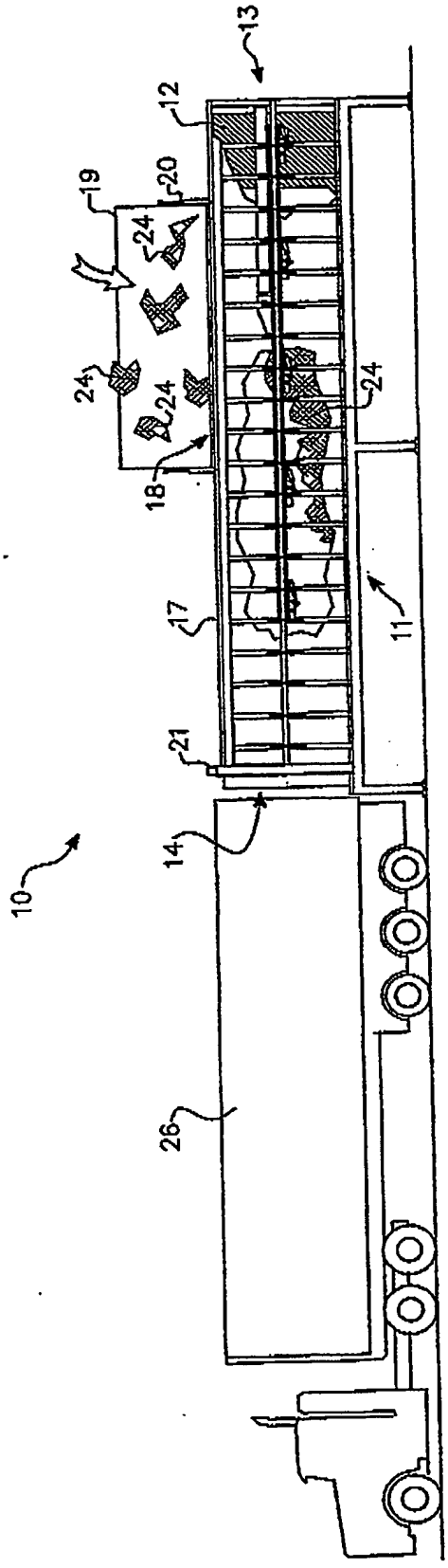

Fig. 2a

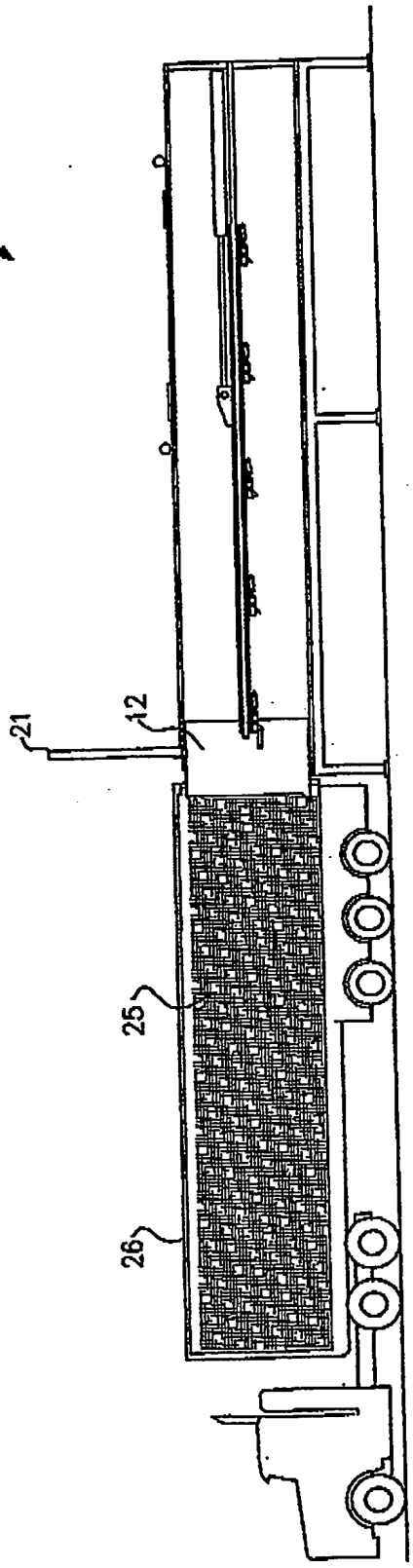

Fig. 2b

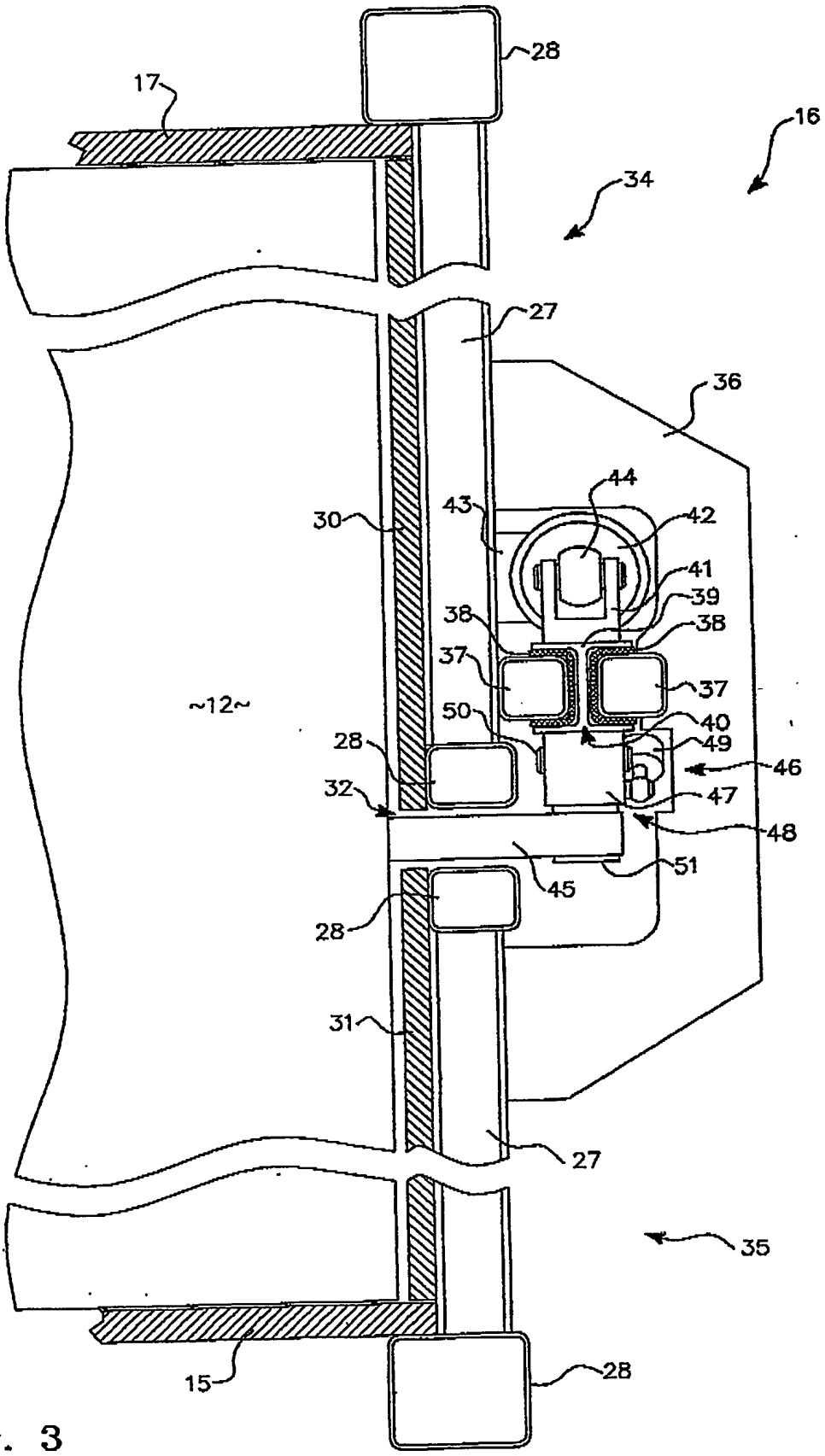
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Fig. 3

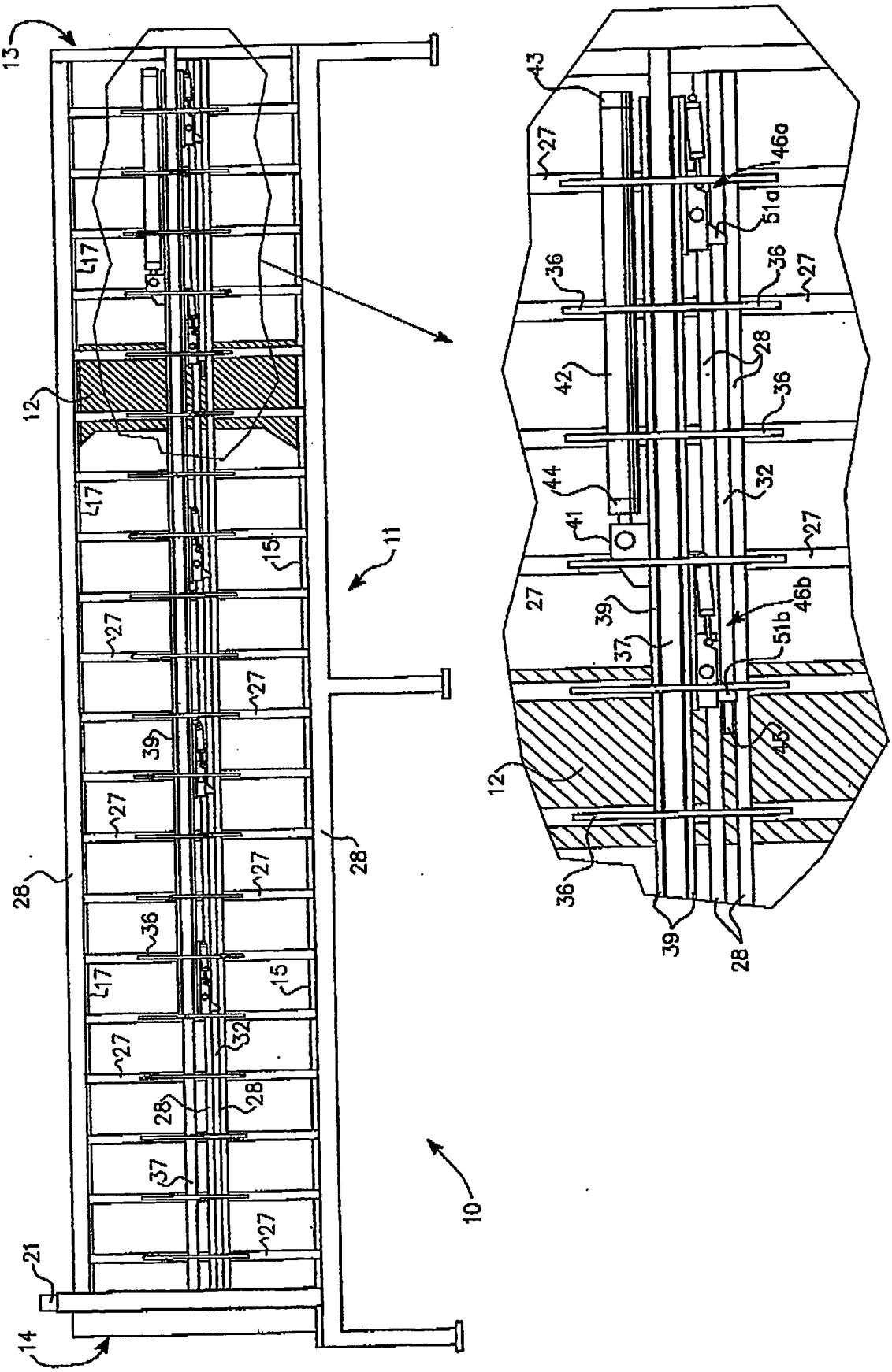
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Fig. 4

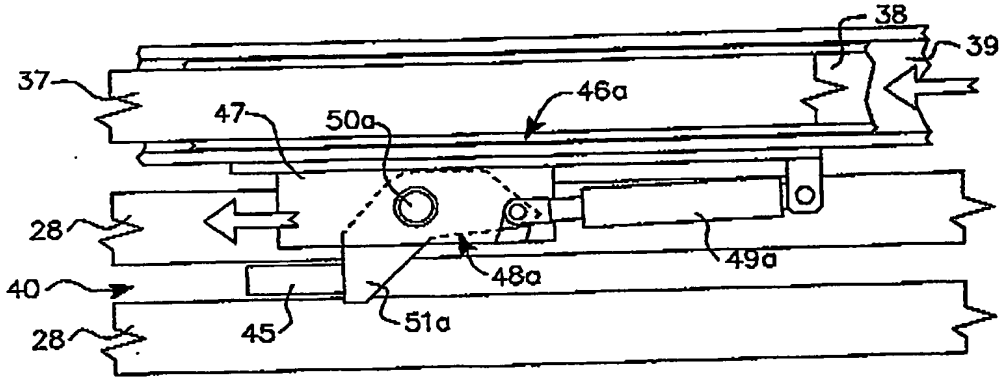

Fig. 5a

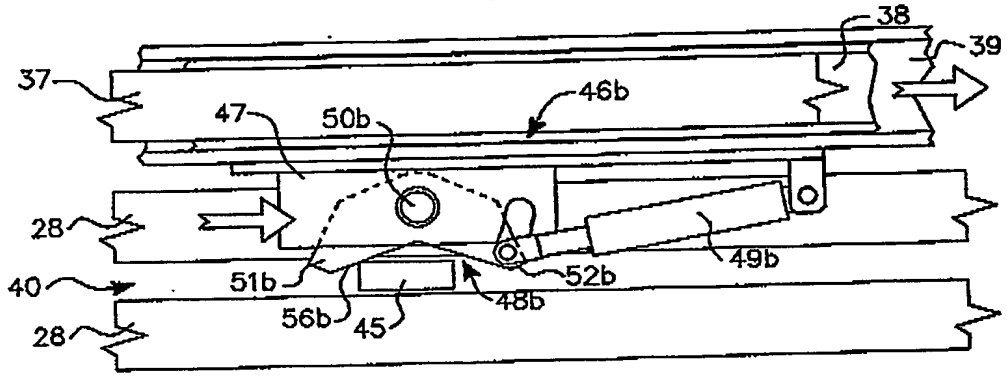

Fig. 5b

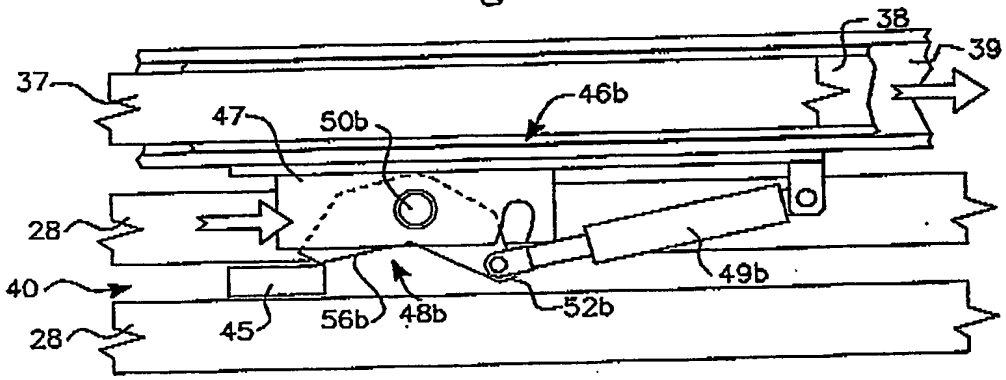

Fig. 5c

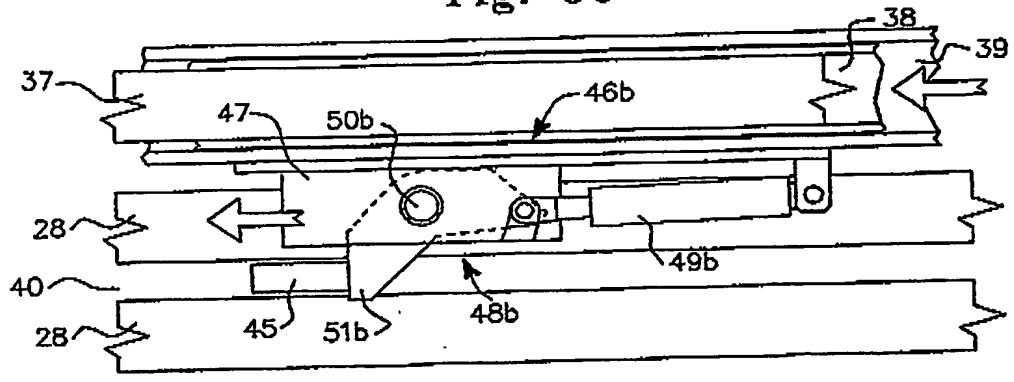

Fig. 5d

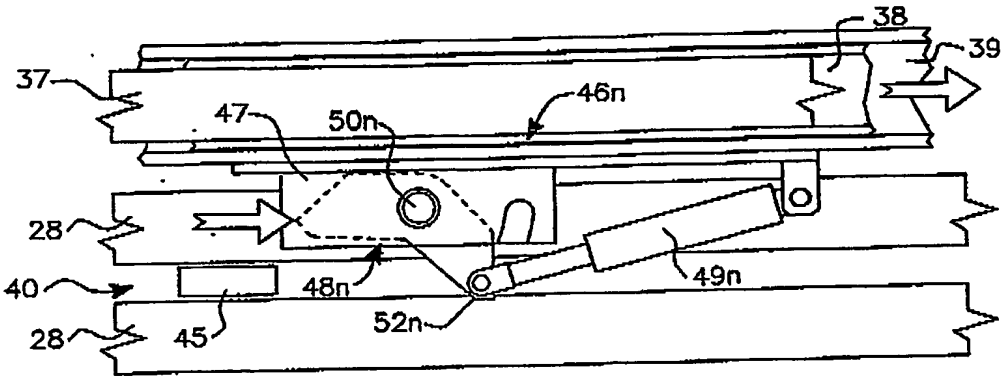

Fig. 6a

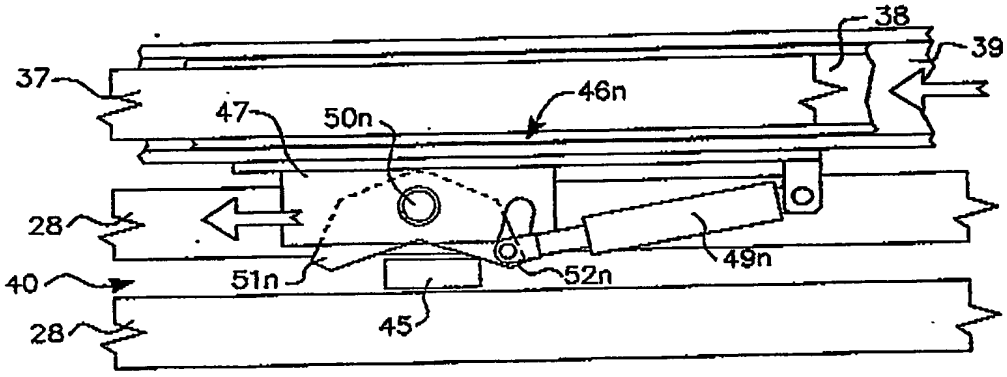

Fig. 6b

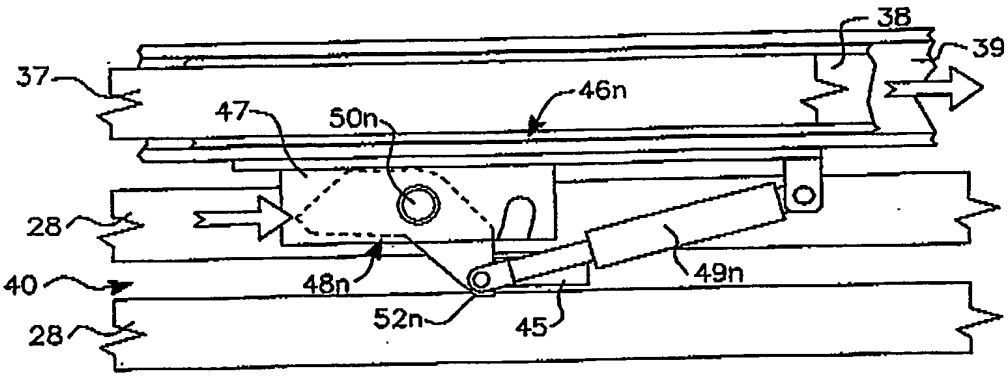

Fig. 6c

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